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# Cornell Countryman

March, 1957

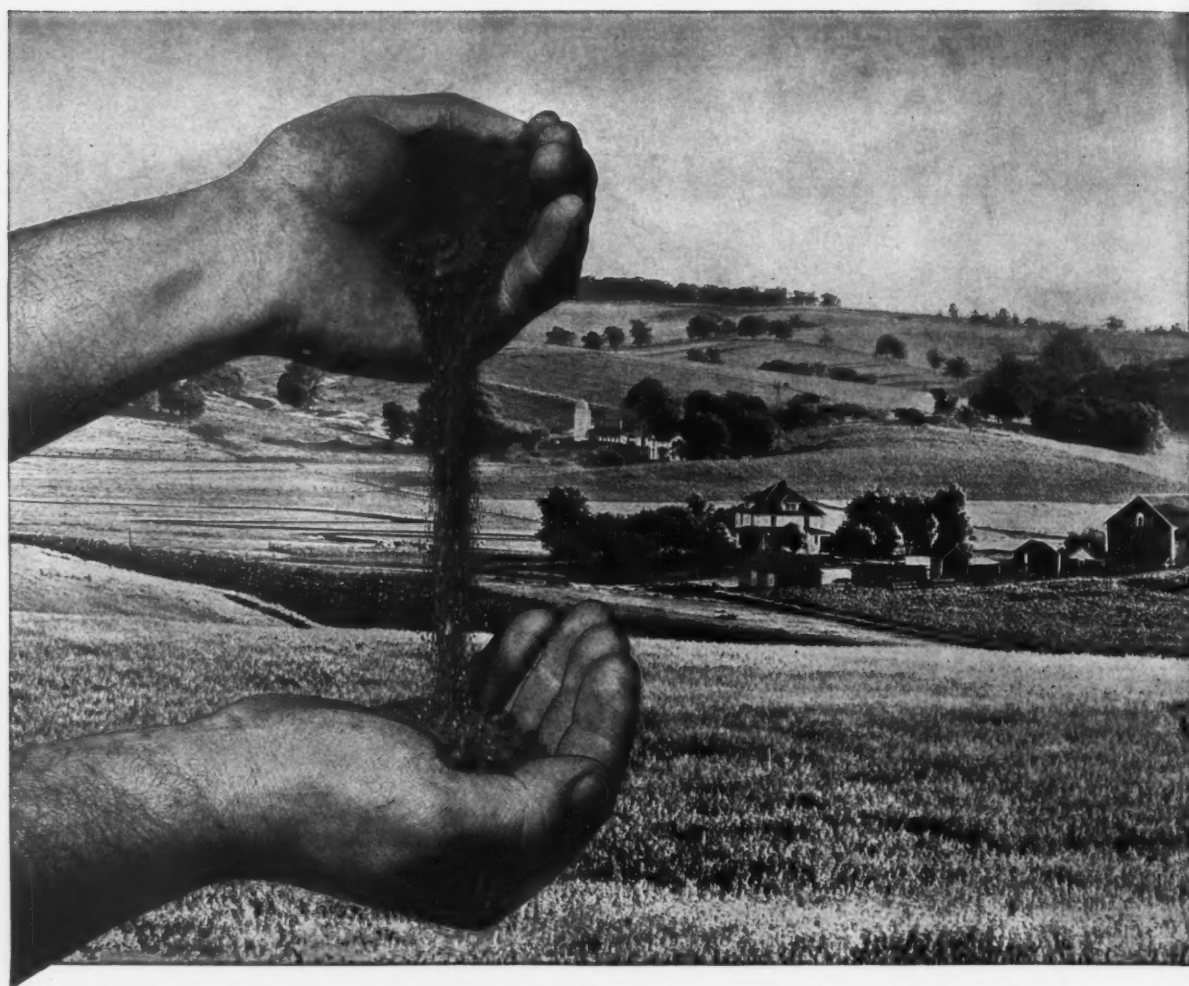
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FARM and  
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resents a mite of soil resource taken away from our national stockpile of natural resources.

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# Cornell Countryman

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THE CORNELL COUNTRYMAN



## From the Editors Desk

MILK strikes, violence, and government hearings are the latest indications that the small farmer in New York State (as well as elsewhere) is having a pretty rough time of it. He is being squeezed right off his land, not only by other farmers who have bigger farms, but by other industries which offer higher wages and a little more security.

But there is another side to the picture, which we overlook, and that is that agriculture is doing a bigger business than ever before. The expansion of agricultural services—advertising, marketing, distribution, health, and science—has accounted for this increase, and offset the loss of farm opportunities in recent years. This is a pretty important fact to farmers who have high-school aged children, and to students in, or preparing for college.

Farm youth, as well as city people interested in agriculture can still find very satisfying careers in this field. Only a small number of them can ever be farmers. But, with farm practice and experience, and a degree in agriculture, the rest can qualify for any number of jobs open to them in the growing fields of agricultural services.

Surprisingly enough, there are many people who don't know this at all. They are prevented from knowing by a mass of misinformation. Just think of the number of papers each week which have large ads screaming for engineers. Notice the salaries engineers can start with. Then notice how many people regard agriculture as a dying enterprise—a political football—something which the government has to be benevolent to. And then notice how little information the guidance counselors in the high schools are able to give about opportunities in agriculture. Now you have the reason that there is still a need for people preparing for these jobs aligned with farming.

Take the College of Agriculture at Cornell, for example. With present facilities, it could handle 400 more students than it has now. It appears that we, and other agricultural colleges are feeling the effects of the trend toward a liberal arts education, and are losing in the competition with other industries. The brilliant students are being pulled into engineering, science, liberal arts, and many other fields simply because in many cases they don't know that agriculture offers jobs just as challenging.

"Agriculture cannot move ahead unless it gets its fair share of the brains of the country" was how the Director of Resident Instruction put it. Mr. Gibson, and the Executive Committee of the Alumni Association have sent an open letter to the graduates of the College of Agriculture

urging them to work in their own areas and interest more "good" students in coming to Cornell. The following points are emphasized:

- \* The College of Agriculture provides a liberal as well as technical education.
- \* The curriculum is flexible. It can fit any of the needs of any person.
- \* The College has training appropriate for both rural and urban people.
- \* There are opportunities for women as well as men.
- \* Training in the College of Agriculture is on an equal basis with training in other colleges at Cornell.
- \* Tuition is free to residents of New York State, and lower than in the endowed colleges for non-residents.

The University of Missouri, another school concerned with this problem, has sponsored a "College Career Day," an open house for high school students, hoping to spread information that way.

There are remedies both within and outside the college itself. "College Career Days" are only one answer. Cornell has provided the start to another—an appropriation in the budget for a field representative, who will visit various high schools throughout the state, and show the students what a variety of jobs they can prepare for studying agriculture. Guidance counselors are in the difficult position of having to tell their pupils about the high paying, most glamorous jobs, the ones which have the best immediate future. This is why they under-emphasize agriculture and build up engineering. Then, too, they usually know more about the fields other than agriculture. A field representative will make the vocational advisor's job much more effective.

The College realizes that students planning to enter agriculture must have a broad background in basic, biological, and applied sciences, as well as communications skills, and liberal arts, and it has provided its students with every opportunity to get such a background as an undergraduate. The trend toward a liberal education is a worthwhile one, it is felt. In this age of heavy competition and uncertainty, a student can no longer afford to specialize in only one subject.

Thus, people planning their careers must be aware of all the facilities open to them, and all the opportunities that may come to them. Parents, students, and guidance counselors must know that there is plenty of room in the "new" agricultural business.

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# Around the Upper Quad

UPPER campus organizations are buzzing with activity in preparation for Farm and Home Week. Students are taking a vital part in planning and working with exhibits, concessions, and other activities.

## *Livestock Show*

One of the biggest features of the week is the Livestock Judging Show to be held Friday, March 22 at 1 p.m. at the Judging Pavilion. The Show will be dedicated to the memory of James McDonald, who willed his farms to the University.

Contestants have signed up to show 110 animals in the contest. There are 56 showing dairy cattle, 32 showing beef cattle, 11 sheep, and 11 swine. No horse classes are being held this year.

Prizes have been contributed by farmers, industrial companies, and the Artificial Breeders' Association. They include both money and trophies. The highest possible award is the trophy for the Grand Champion Showman. Others include show halters, a set of Swiss bells for the Grand Champion Swiss Showman, model cows of each breed, a trophy for the Grand Showman in each division, an electric calf dehorner, an aluminum show stick, and a woolen blanket from Kenwood Mills, for the Grand Champion Sheep Showman.

Gary Stewart, co-chairman of the show, says that all who have signed up are showing a great deal of interest and are working industriously with their animals.

## *Concessions*

Many upper campus organizations are managing concessions located at various points around the campus. They are selling food and souvenirs.

The Swedish Exchange Booth on the upper quad will sell hot dogs, candy, and other foods as well as souvenirs.

Hot lunches will be available in two areas. The *Cornell Countryman*, Grange, and CATA will serve meals in Barton Hall from 12 to 1:30 every day. In the Judging Pavilion, The Round-Up Club will sell hot lunches.

At the Square Dance, Thursday, March 21, the food concession will be handled by 4-H and Ho-Nun-De-Kah, and Pre-Vet Society will manage a hat-check concession.

Poultry Club will sell small articles, such as candy and cigarettes in Rice Hall. Ice cream will be available in Stocking Hall, courtesy of the Dairy Science Club. Pomology Club will sell apples, and Veg Crops Club will supply the other concessions with potato chips.

## *Queen Contest*

Ten organizations are sponsoring candidates for Farm and Home Week Queen. They are: Ho-Nun-De-Kah, Dottie Eckert; Ag Engineering Club, Joan Seward; *Cornell Countryman*, Chris Drake; Round-Up Club, Gaea Bowers; Conservation Club, Kay Albrecht; 4-H, Carol Hencle; Grange, Elsie Smith; Poultry Club, Jeanne Perkins; CATA, Donna Handy; and Home Ec Club, Betty Herring.

Posters with group and individual pictures of the girls are placed on campus. Be sure to vote for your favorite on Wednesday, March 20, in Mann Library.

## SCHOLARSHIPS AND AWARDS

Sweden is getting to be a very popular place for Cornellians these days. Two more agriculture students will be studying there next year. Gay Anderson '57, a floriculture major, has been awarded \$2,000 from the William Frederick Dreer Fund. She will study park planning and landscaping architecture in Stockholm for a year. Fred Koennecke '59 is the winner of the Cornell Swedish Exchange Scholarship. He will study general agriculture at the Royal Agricultural College in Uppsala, while another Swedish student will study for a year at Cornell.

The Danforth Summer Fellowship is awarded to an outstanding college freshman and junior in the field of home economics. The Fellowship offers a wonderful opportunity to travel to St. Louis to meet young college women from all parts of the United States, Canada, Alaska, Puerto Rico, and Hawaii.

Nutritional study and job opportunities available to home economists, as well as fellowship and friendship are the primary objectives of the first two weeks of the trip. The second two provide travel through Illinois and Missouri to Muskegon, Michigan. There, the Senior Danforth girls join the freshman group at Camp Minawanka, and participate in four-fold program of personal, social, religious, mental, and physical development.

The Fellowship is awarded every year. It will be an enjoyable and very rewarding experience for the Danforth girl of 1957.

## AG-DOMECON COUNCIL

At Straight to the Country, held March 5, 6, and 7, Ag-Domecon showed its role as co-ordinator of upper campus activities. The names of other clubs were given to show how they tie in with Ag-Dom.

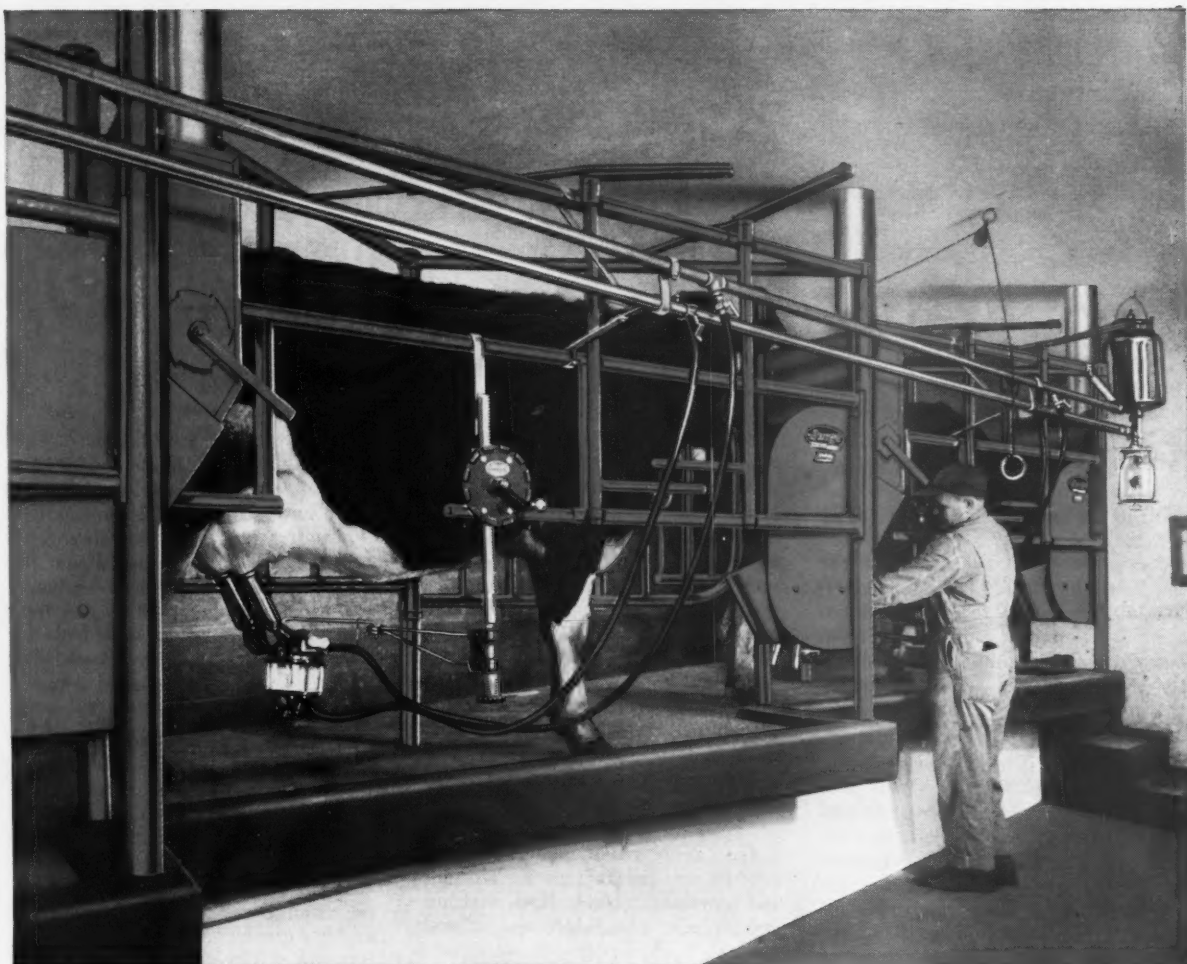
A Leadership Workshop will be held Saturday, May 4 for club presidents and program chairmen at Mount Pleasant. Several professors from the rural sociology department will give ideas on what should be done for better leadership, and therefore better club participation to make the upper campus clubs more effective.

Mann Library is now open Sunday afternoon. This has been accomplished through the work of Ag-Domecon committee.

## CLUBS

March 19 is the date of the annual Grange Farm and Home Week meeting in Warren Seminar Room. It will be an open meeting for all Grangers. The speaker will be Charles Ross, from the National Youth Committee.

For Straight to the Country, the Grange showed some of their activities. By means of pictures and posters they gave examples of how their Interantional Exchange Program, Recreation Team, and Installation Team work. The Cornell unit of National Grange is taking part in a Community Service Project, a national contest to improve the community in which they live. With the help of their Recreation Team, they are trying to do community service in the territory surrounding Ithaca.



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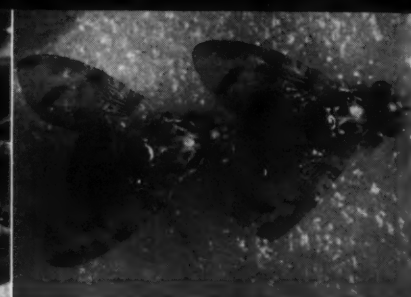
egg



larvae



pupae



adult

Life Cycle of the Medfly

## Cooperation Ousted the Medfly

By THALIA NUNGEZER '57

ONE morning in April, 1956, a suburban Miami homeowner discovered "worms" eating the grapefruit in his backyard. Led by curiosity we took a grapefruit to the Dade County agent who in turn sent the sample to the Florida Experiment Station at Homestead for identification. Six days later adult flies, hatched from larvae which was shipped to Washington's National Museum, confirmed the suspicion that the invader was the Mediterranean fruit fly.

The Medfly is a dreaded enemy of all citrus fruits except lemons and sour limes. Over 200 other fruit and vegetable crops are also attacked by the fly. Peaches, papayas, guavas, rose apples, and surinam cherries are preferred hosts. Unchecked, this insect, which is slightly smaller than a house fly, could ruin the economy of Florida and also become a potential threat to all Southern and Western fruit growers. In some areas of Africa and South America, where the Medfly rages almost unhindered, commercial fruit production is difficult or impossible. In Florida alone the estimated annual cost of living with the fly would be two million dollars.

By the time the first Medfly had been discovered, the infestation was generally established in a thousand square-mile strip along the southeastern coast of Florida. Travelers and tradesmen unconsciously spread the fly. Twenty-eight counties were covered by major or spot infestations.

ON the recommendation of the U.S. Department of Agriculture, Congress quickly passed an emergency allotment of more than two million dollars for Medfly control, half of which was immediately available. State and Federal crews set off an all-out offensive. Specialists rushed to the area from Washington D.C., Texas, California, and even as far away as Hawaii. An intensive survey was begun to establish the limits of the invasion. Florida

State Plant Board workers started destroying fruit on heavily infested properties. Regulations were invoked by the State to prevent movement of infested products to other areas. From all over Florida district Plant Board inspectors arrived in the Miami area for training in trapping and survey procedures.

An extensive eradication program was soon underway. Powerful new insecticides, effective attractants, streamlined traps, and safe fumigants, developed through the years of foresighted research following the Medfly invasion of Florida in 1929, were promptly put to use.

Bait spray was applied to vegetation in infested regions by airplanes and ground sprayers. Both malathion and organic phosphate, and a yeast bait of protein-nutrient were used. Complete coverage of all foliage was unnecessary, as the poison bait draws flies from untreated areas up to 500 feet away. Twice as many females as males were usually attracted.

MULTI-engine planes flying at low altitudes emitted a fine spray over Miami and other urban areas. Fortunately, people, animals, and plants (even delicate tropical varieties), are not harmed by this spray. Medflies and some small tropical fish are the only fatalities.

Infested fruits often fall to the ground while the Medfly is in the larval stage. By picking up and destroying fruit, tree owners were able to keep some maggots from maturing. Another more effective method was killing the larvae as they entered the soil to pupate, or the young adults as they emerged from the soil. To do this a granular insecticide called dieldrin was applied to the ground beneath host plants.

To quickly determine the extent of Medfly infestations, workers set survey traps in all fruit growing sections of the state. An attractant bait, the

base of which was oil of angelica-seed, commonly found in perfumes and liquors, was mainly used in the traps. Here luck was with the campaigners. This attractant had been discovered at the USDA Honolulu Fruit Fly Laboratory only a few weeks before the Florida outbreak. It is the most alluring bait known for male flies. But supplies of the angelica-seed oil dwindled under the unusual demand.

WHAT could be used in its place? Fortune smiled again—this time in the form of the USDA chemist at the Agricultural Research Center, Beltsville, Maryland. He came up with a synthetic attractant, an acid ester labeled ENT-21, 478. It is not as effective as angelica-seed oil but is cheaper and has greater uniformity and stability than a natural attractant because it can be reproduced to exact formula.

The traps were extremely important in maintaining an effective spraying program. They provided rapid and accurate determinations of the presence of the Medflies in particular areas. Within hours after discovery, spot infestations were sprayed from airplanes or ground mist blowers.

The bait spray was applied at intervals of ten to fourteen days. One spray would prevent practically all adult Medflies from reproducing, but the eggs and larvae inside fruits and pupae below ground would go untouched. The spray schedule had to extend to cover the entire life cycle. Five or six applications were usually necessary to wipe out the insect.

Rain and climatic conditions, mechanical failure of spray planes, and the difficulty of laying an accurate spray field might delay complete eradication. "Shiners" or hardskinned, overripe, mummified fruit hanging on trees were an obstacle as they could trap larvae and extend the life cycle several weeks.

(turn to page 28)

# Let's Export Our Farm Surplus Problem

By MARTIN I. BOBROWSKY '60

THE farmer, with his cyclical struggle for economic equality, has recently been offered one means of improving his standing. Foreign trade, that is, export of farm goods, is becoming an increasingly important factor in solving the puzzling farm problem. It may lead the way to bigger markets, smaller surpluses, better prices and higher incomes.

Nobody can hope that foreign trade is the cure-all for our monstrous surplus siege. Nobody can hope for that —yet. But along with the continuous upsurge in population, and the high consumer incomes which maintain a high level of demand on farm products, foreign exports can be expected to take up a large chunk of our foodstuffs, our current production, and our mountainous midwest grain stores.

Volume-wise, the 1955 level of United States agricultural exports was the highest in 30 years, and the prospects for the coming year indicate a further gain of 25 per cent. This upward trend — in both dollars and tons—reflects the economic picture of Europe and most of the world; a firm, cautious, but confident upswing.

Balancing, or perhaps marring this picture are some definite foreign trade roadblocks. The principal factors hindering U.S. trade in agricultural products (primarily with European countries) are three-fold: dollar shortages, bilateral trade agreements, and efforts by these countries to achieve self-sufficiency.

There are hopeful signs in two respects, though. The dollar shortage in Western Europe is being eased by free spending tourists and G.I.'s. Also, high protective tariffs are being liberalized to attract foreign capital. It is a contradiction of purposes for these countries to close their domestic market to foreign goods while promoting the entry of foreign capital.

The event of 1956 which is destined to have the most noticeable, far reaching and serious effects, and whose solution is still entangled in a power mesh of conflicting interests — the

seizure and subsequent blockage of the Suez Canal — is responsible for a troubling cloud over world-wide foreign trade prospects.

In 1955, 14,666 ships passed through the Suez Canal carrying a total cargo of 107.5 million metric tons, of which 15 per cent was reported as agricultural commodities. Translating these numbers into the more familiar world of words, a huge amount of important agricultural products is now blocked or hampered by the disruption of canal traffic.

Although shipments of agricultural products to and from the United States represent less than ten percent of the movement of such commodities, this trade route is essential for certain products. About 75 per cent of this country's imports of rubber from Indonesia and Malaya must move through the Canal. Sugar, sisal, coffee, tea, fruit, vegetable oils, weave their trade patterns with the Canal as their central point. United States exports of grain and rice to India, Pakistan, Indonesia, and other vital world powers of South Asia also ship through the Canal.

By far, the largest part of the agricultural products shipped north through the Suez Canal is destined for Europe, which now means that both oil shortages and possible food shortages can quickly deflate Europe's rising economy, putting holes in its structure.

Not only is Europe vulnerable, then, but the flow of agricultural commodities assumes an importance because of the basic interdependence among European nations. This resulting chain reaction, caused by blockage of the Canal, is often a point on which foreign policy is based.

The problem of foreign policy often brings two members of our Washington governing "team" into unfortunate conflict. The State Department and the Department of Agriculture have periodic habits of flashing red lights and setting up roadblocks

against one another, while inviting each other to go ahead, with a "Good luck to you if you can find a road that's open." Thus, the USDA, which is trying to export our surpluses, and our State Department, which supposedly is trying to form a consistent foreign policy, stalemate each other. And often, the master control, who can pull out all the red lights and clear the roads, is sadly missing.

But the potentialities remain for wooing neutralist Asia with needed wheat and other grain export agreements (when the Russians don't beat us to it), and for quickly ending Egypt's continual flirtation with the Soviets by flooding the world market with our surplus cotton — Egypt's main cash crop.

American diplomacy now enters the picture. One of the most important diplomatic links in the foreign trade chain is the Agricultural Attaché. His problem is the essential one; how to export large amounts of farm products and at the same time build a maximum amount of international good will. The Attachés are making a double contribution, building and maintaining foreign markets for American farm products, and also strengthening our domestic agriculture and our foreign relations. The three areas of activity of the Attachés are reporting, representation, and market development. They keep the USDA informed of important foreign developments that affect U.S. agriculture, they build good will and understanding, and they have the all-important responsibility of expanding the export promotion programs in the countries where they are stationed.

THE fact that we are trying to expand our agricultural markets and to move more of our surpluses into world use, to people who need and want them, is of obvious benefit to our agriculture, but it also presents certain foreign relations problems. In today's world we not only need customers, but also friends.

By EDWARD L. RAZINSKY '60

Every year the farmers of our nation experience these two extremes in water supply.



— EXTENSION SOIL CONSERVATION  
Extensive flood damage is shown by this washed out road.

## Floods and —

THE substance which is so necessary for life on earth can be the element which destroys it. The water which can soothe the throats of men and moisten the roots of plants can clog the throat and tear the root. When the uncontrollable floods come, all living things can only remain silent and hope.

The inhabitants of South Carolina will remember one sweet little lady called Diane, as will many other people in Northeastern United States. Diane hit the Carolina coast in August just a few days after Hurricane Connie.

Many will recall the newspaper headlines of August 20, 1955. "Floods batter the Northeast; 73 killed, Damage in billions; 4 states declare emergencies." Our friend water had turned against us again. Many heavily populated resort areas in southeastern New York State were under water. A swollen Delaware River sent many New Jersey residents running for higher and drier ground. In Connecticut highways were washed out, bridges wrecked, dams smashed, factories flooded, and railroad tracks torn up. Many homes were washed away and thousands of acres of corn, tobacco, and other crops were demolished. The monetary damage could be measured in millions, perhaps billions, but this was overshadowed by the death toll.

DURING that August period, Northeasterners felt that this flood was the epitome of destructive power, but floods of March, 1936 could not easily play second fiddle to it. During that flood, one hundred and sixty-eight persons were killed, four hun-

dred and twenty-nine thousand had to evacuate their homes, and the damage in dollars of five hundred million.

And what of the flood disaster of Johnstown, Pa. in May, 1889? Two thousand, one hundred lives were lost and the whole town was literally swallowed by the Conemaugh River. In March of 1913, four hundred and fifty persons perished and the total damage was in excess of one hundred million dollars in the Ohio and Indiana floods. April, 1927 saw the mighty Mississippi tear across eighteen million acres of land, drive three hundred thousand from their homes and take three hundred and ninety lives. The Missouri River took forty-one lives and caused one billion dollars worth of damage in July, 1951.

PAST destruction as well as today's accelerated rate of flood damage has caused man to take measures to control the ravages of floods. The necessity for flood control measures was seen and acted upon after the major floods of 1935 and 1936. The Flood Control Act of 1936 set forth the jurisdiction of flood control agencies.

In New York State there are four agencies which are immediately involved with flood control: The Army Corps of Engineers, the United States Department of Agriculture, the New York State Flood Control Commission, and the New York State Department of Public Works.

Federal investigations and improvements of rivers and other waterways for flood control are handled by the Chief of Engineers. The USDA helps prevent soil erosion, and investigates watersheds as well as run-off and waterflow control measures.

Following the floods of 1935 in south-central New York State the State Legislature established the Flood Control Commission. Of the twelve members of the commission, four are appointed by the Governor, four senators by the President of the Senate, and four assemblymen by the Speaker of the Assembly. This organization promotes flood control measures specifically in New York State.

THE New York State Department of Public Works buys the land for flood control projects and maintains the projects after their completion. The Division of Administration (one part of the Department of Public Works) takes care of damage and compensation claims. The Division of Construction reviews the plans of the Army Engineers and coordinates them with their own. Field work is done by ten District Engineers.

The losses from the 1955 floods were great. However, the efforts of these organizations aided in redeeming the losses and New York State flood victims were able to apply for federal rehabilitation loans. For months the Army Engineers were a familiar sight in flood damaged areas. In February of this year, Senator Joseph Clark of Pa. requested Army Engineers to investigate the possibility of supplementing the Allegheny River dam in lower New York State with a flood diversion basin.

Many long term flood control projects are now under construction. With the work of governmental agencies we will be able to combat the uncontrolled water which can destroy much property and many lives.



# Drought

By ELEANOR A. RAMP '57

**S**UMMER—the very word denotes vacation, fun, and sunshine. To many people it means a stay at some seaside cottage or cool mountain resort. It conjures up a pleasant scene and memories of enjoyment under the steady sun.

**B**UT not to the farmer. To him, the summer often means a time of anxiety and concern. As the sun beats down on his fields day after summer day, he views the weather vane hopefully for signs of wind change. He prays silently for the clouds to come with rain. From spring seeding time on, he waits helplessly for Nature to allay his constant fear of a summer drought.

Often local in nature, droughts may spread the nation over. A long spell of dry weather in the summer of 1934 caused many a farmer to wonder what to do. The drought, the worst in the climatological history of the United States, brought great losses.

Crops were literally wiped out. Strongest hit were hay and forage crops. Loss of these meant reduced feed for livestock, and resulted in a killing of large numbers of animals. Eventually an over-all reduction in meat supply caused higher food prices.

Even the eastern states, which lie in what is classified as a humid region, suffered. In New York State, streams dried up. Farmers' credit began to tighten as the feed sources decreased. Milk production dropped, and the farmers' livelihood dwindled. The agricultural economy of the whole nation was affected.

Modern civilization with its industries and many cities has placed heavy demands on the earth's water supply. Each country home which boasts running water uses sixty gallons per day,

while those without indoor plumbing use an untold amount more.

Hence the necessity of today's interest in legislation to help conserve such a valuable natural resource. Although water conservation measures seem to be a product of an advanced civilization, they date back to five thousand years ago when the Egyptians were known to have built a dam on one of their rivers. It can be seen among the remains of the solidly built Roman aqueducts.

**B**EGINNING in 1897 with an act concerning waterflow, Congress has passed many laws to alleviate water problems. In the 1930's came a series of Federal and State laws to develop and conserve water. In 1933 TVA originated and a federal agency was set up to combat soil erosion.

Today the trend in water conservation is toward the use of small watersheds in the development of soil and water resources. The Federal government as well as the local and state administration is carrying out programs for the conservation of these resources. Legislation is concerned with such problems as agricultural and urban flood control, irrigation development and drainage improvement.

Another fairly widespread drought occurred in the summer of 1955. A look across the plains of Nebraska and Kansas revealed not acres of dry and dwarfed corn and oats and other grain, but mile after mile of ruined crops. No rain had fallen for forty days. Back in the East the small dairy farmer lost his summer cash crops as well as his winter's supply of silage. Both sweet and field corn dried up before reaching maturity.

Thus can be seen the importance of the alleviator of the ancient drought

problem—water. The earth has a certain fixed supply in the lakes, streams, oceans, atmosphere and soil which forms a hydrological cycle, i.e., water is in balance.

The land gains water from precipitation; the sea gains it from precipitation and run-off from the land; the air gains it by evaporation from both sea and land. Nothing man can do will change the amount of rainfall.

Within this cycle come daily and yearly changes in rainfall which cause uncontrollable droughts and floods. These are attributed in part to the motion of the sun and the amount of sunspot activity. Scientists have found evidence that atmospheric circulation increases when the amount of solar radiation changes. Temperature and wind changes occur also, which eventually affect the amount of rainfall on the land.

Whether belonging to land or sea, every living thing depends on water. Without it there would be no vegetation; without plants, no food for animals. The entire food chain would end without water, one of its essential raw materials.

**I**NDIVIDUAL landowners have available many means of public assistance on conservation problems, such as their county agents. Everyone lives in a soil conservation district which has people ready to assist him. Government loans can be obtained for water conservation and certain income tax deductions are allowed when a farmer spends money for conservation measures.

Through conservation and irrigation the farmer may often be able to bring life to his dying fields, but no patented method will completely alleviate the uncontrollable drought.



COLLEGE OF AGRICULTURE

Parched and cracked soil, an example of the damage done by drought.

# "King Cotton" Has His Problems

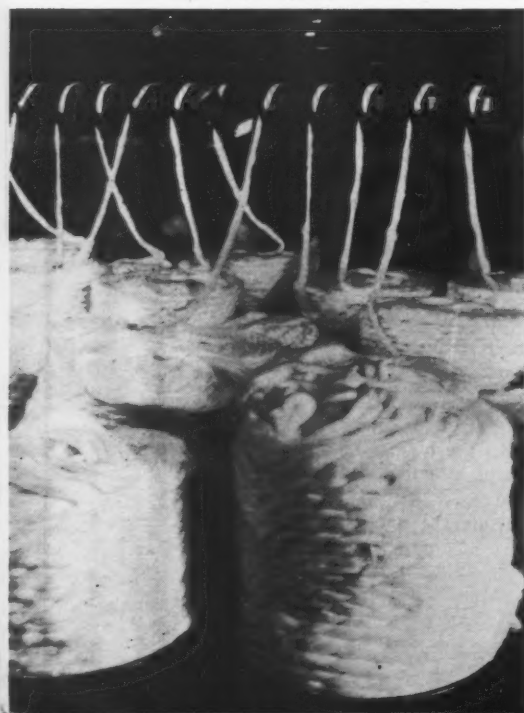
By NATALIE L. GUNDREY '58

ONE of the world's oldest crops is feeling the pressure of modern times. Yes, we mean cotton—not grown at all around these parts, but so important to all of us—farmers, housewives, and businessmen, that we can't help but take a look into the plight of this useful plant which was known in the East 15 centuries before Christ.

These white or nearly white balls of "fuzz" encasing the hard brown cotton seeds were mysterious things in the middle ages—thought to be half animal and half vegetable. In fact, they were called "Vegetable Lambs." Their growth was described by one English traveler in 1322 as such: "And when these [the bolls] be ripe, they burst, and a little beast is found inside like a small lamb, so they have both melons and meat."

Since that time cotton has become one of man's most useful crops. The mystery around it has been replaced

Combing and loosely twisting raw cotton fibers into a soft rope in preparation to spinning.



by the hard and very unmysterious fact that the genus *Gossypium* is losing ground fast in the United States, as new synthetic fibers become more common, and as more foreign countries compete with our own cotton market. The old problem of boll weevils, which once sent the owners of cotton farms fleeing west and north from the old cotton belt to find new land, seems a small matter now that the cotton crop is in excess of its demand. With only 2 percent of the crop harvested mechanically, production costs are still high, and cannot be reduced to give cotton a comparative advantage over other fiber.

Cotton is one of the very few crops which depends on industry alone. One-third of the harvest goes for clothing, one-third for industrial uses and one-third for household appliances. Its ability to withstand boiling, washing, rough treatment, its low cost in the days of cheap labor, and its versatility, have made it "King" for years. But "King" Cotton's position is very shaky at this moment.

Figures tell the story well. The United States' production of cotton in 1956 was estimated at 14,616,000 bales. The carryover cotton for the same year amounted to 14 million bales, three million more than at the beginning of the season. Carryover like that has been increasing steadily every year since 1951. This is also the fourth straight year that production has exceeded consumption.

Acreage controls have not been effective in cutting yields to meet demand, either, for the '56 production was seven percent larger than the year before, despite a 14 percent drop in cotton acreage. More cotton is being produced per acre. In 1950, 259 pounds were grown on each acre. In 1955, the figure jumped to 431. Technology has accounted for some of this increase, but a substantial amount is due to exploitation—crowding more cotton to the acre. This practice drains the fertility of the soil too quickly; and farmers are not replacing enough of the lost nutrients and organic matter. USDA scientists have estimated that it takes 100 pounds of nitrogen to produce the first bale of cotton on an acre of land, and 30 pounds more for each succeeding bale.

Thus cotton has a problem of decreased acreage (which is actually decreasing farmers' incomes) resulting in an increased yield of a crop which is quickly depleting the soil, for a market which has too much cotton on it anyway. The crisis approached its peak when Secretary of Agriculture Benson announced that cotton was to be put on the world market on an open competitive basis "possibly at prices somewhat below the minimum price limitations which control most CCC sales," in order to get rid of some of our surpluses. This move alienated many foreign countries by underselling their cotton market. Egypt is notable among them.

THE downward trend of the prices of man-made fibers relative to those of cotton is the underlying reason for cotton's difficulties. The advantages of such materials seem to be increasing every day. Housewives prefer textiles they can wash and wear without ironing, and keep without worrying about pleats staying in, or material crushing. Today's emphasis on travel calls for a wardrobe of light, non-bulky, wrinkle-resistant, wash-and-wear clothes; all requirements satisfied by the "wonder" materials.

Saran, vinyon, orlon (synthetic resins), vicar and ardil (corn and peanut proteins), and nylon as well as plastics, which have completely taken over the field of aprons, rainwear, and shower curtains, are only a few of the "enemies" of cotton.

Paper has replaced this old standby too, in paper bags, towels, and napkins. But the most spectacular displacement has been in the tire industry, where cotton fiber used as cording in tires has been almost completely replaced with higher strength rayons.

Despite this gloomy picture, there is still hope for the cotton industry. Although opinion is divided on the subject, many industrialists feel that cotton's future lies in new markets

and uses. They think that man-made fibers have captured mostly all of the markets they are best suited for. Neither can synthetic fiber producers reduce their prices very much more, they feel. Cotton might be able to reduce cost of production if it could mechanize.

THEN, too, each synthetic fiber exceeds cotton in one quality, but not one does in all. Cotton is better all around, and will fill more versatile needs. It has better wet strength, comparatively good dry strength, larger moisture absorbancy capacity, and a fairly cheap price. Furthermore, many new uses and combinations of the crop have yet to be discovered.

With these facts in mind, cotton producers and processors are concentrating on two areas of improvement. First, they are finding new ways to make the cotton itself better. They are breeding varieties which yield longer and stronger fibers. They are experimenting further with wrinkle-resistance, new finishes, more "winterizing," and greater versatility. The Massachusetts Institute of Technology is presently using high-energy radiation on the fibers to see if new, stronger, or different kinds can be

produced. Cold weather cottons are being developed, too.

Secondly, cotton men are using the "If you can't beat 'em, join 'em" philosophy, and it is working very well so far. Nylon reinforced cotton already enjoys a good market, and blends of dacron and cotton are proving popular in everything from lingerie to men's suits (Cord suits don't have to be pressed every evening any more if they're made of dacron and cotton). The advantage of such blends is that varying proportions of each textile can be used to fulfill different purposes. More nylon could be used in a material that would have to withstand heavy wear, whereas more cotton would be used if great moisture absorbancy was desired.

Cotton as part of laminated plastics is finding its way into the market, and should prove more useful.

WHILE the cotton outlook is changing, many stresses and strains are being put on a great deal of people. But, each industry must modernize with the times, and though it is difficult to weather now, a new, expanded, and improved cotton industry, well adapted to today's new demands, will be the result.

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# A Family's Living from a Family Farm

The cost-price "squeeze" has really hit operators of small family farms, but local Development Committees are now working to improve the small farm's economic position.

By DOUGLAS D. INNES '59

THE purchasing power of American farmers was lower in 1955 than in any year since 1940.

Steadily increasing since 1945, the farm debt has now reached a total of nearly \$19 billion. Although total price support loans dropped in 1955, other farm debts have increased nine percent since the previous year. Gross farm income slipped two per cent in 1955, and the farmer's net income in 1955 withstood an \$800 million, or five per cent drop.

WHAT does this mean to you, if you operate a small farm in the North East?

The spread between your farm receipts, and the money you have to pay out has been getting smaller. Small family farmers have felt the greatest effect of this cost-price squeeze.

You've probably found it mighty difficult to compete with others if your business isn't big enough to afford a baler, combine, or a field chopper. Getting custom work done is not only expensive, but it is hard to get someone to come in and do your work just at the time your crop is ready to harvest.

The high cost of labor is also a problem on the small farm. But, high cost is not the only difficulty. Scarcity of help is common during the summer and early fall, when you need it most. This problem isn't as acute on a farm big enough to keep one or more hired men busy the year round.

SMALL farmers feel that they are being crowded out of business. Some folks are in favor of letting this happen. They say that many of these small farms don't even pay their own way, and that the products of these farms just add to the rising surpluses that have been drawing the farm income down in the past few years. Granted, some farms just cannot produce enough to support a family. But, small farms in general produce only 10 to 15 per cent of the total farm output. Hence, they are less responsible for the surplus problem than are the larger farms.

Many folks on small farms feel that the only way that they can make any money is by increasing their acreage and production. This idea has caused an increased demand for farm land. Farm real estate values have gone up. In fact, farm real estate val-

ues throughout the country rose nearly 4 billion during 1955. Even with more liberal credit policies in effect, it is hard to see the advantages in expanding acreage when the cost of farm property is so high.

THE federal government is concerned with the small farmer's plight. This can be seen in the work of the Family Farms Subcommittee of the House Committee on Agriculture, and in the work of other federal agencies. One of the main purposes of the Rural Development Program is to carry out the subcommittee's recommendations such as: 1. more liberal farm credit, 2. the development of rural industry, 3. better soil and water conservation.

These recommendations are intended to better the lot of small farm operators. Under this program, "Development" committees made up of local farmers and business men, are organized in counties and communities. These committees work to improve the income of small farmers in their area. Fifty-five "pilot" counties are acting as "test-plots" for this experiment in rural development. The

(turn to page 32)

# Food Spoilage Can Be Reduced

By RICHARD M. KOSSOFF '57



Here, dressed poultry is being cooled just after leaving the processing line, and acronize solution is being added prior to the final icing.

## Antibiotics open a new era in food preservation.

THE chicken you buy in the store today may well be treated with the same type antibiotic which has been used to control many microorganisms pathogenic to man. As a result of a process developed by the American Cyanamid Company called "Acronized," the poultry processing and marketing industry is undergoing a silent revolution. By using the antibiotic Aureomycin (chemical name, chlortetracycline) as a food preservative, the poultry spoilage problem is rapidly becoming non-existent.

Essentially the process consists of adding chlortetracycline to a large tank containing ice water in which eviscerated poultry are chilled. The Acronize maintains the freshness of the poultry by slowing down bacterial growth which starts the instant a chicken or turkey is killed. There are no adverse changes in color, taste, or

odor. The Food and Drug Administrations' clearance of the preservative in November 1955 followed more than ten years of research in the use of antibiotics on food products.

WHILE not being a substitute for refrigeration, the process keeps poultry fresher for long periods of time. This fact will be of great advantage to processors, retailers and consumers. It should open new and distant markets, decrease the frequency of shipments, cut spoilage losses, and increase the demand for chicken. The retailer can offer the consumer a uniform quality bird, and because of the decrease in spoilage, should receive less complaints from his customers. The shopper benefits also. Now she need not be an expert in choosing the best chicken from the corner store, as all poultry will be of the same flavor and freshness.

Actually poultry processors have always tried to maintain the freshness of their product. The biggest problem in poultry preservation seems to be in finding an effective way to inhibit the growth of spoilage microorganisms. Sanitary techniques by themselves cannot completely provide a solution.

POULTRY, being a very perishable food item, presents a spoilage problem to producer and consumer alike even under the most ideal conditions. The antibiotic seems to retard a wide variety of bacteria that abound in the meat of chickens. Thus, untreated poultry may be of no commercial value after 14 days of storage. On the other hand birds treated with Acronize have been acceptable to consumer panels on the 21st day.

(turn to page 30)

# From the Gourmet's Notebook

By NORMA J. RUEBMAN '60

"GREECE conquered Rome more by its cookery than by its philosophy" is a most notable comment once made by Kyrios Tselemetes, probably the most distinguished chef in the Balkans. Having just recently experienced the unique flavor of that rather common, but nonetheless superb Grecian dessert "baklava", I was very much inclined to agree with his statement. The distinctive flavor of this one food induced me to examine more closely the cuisine of the ancient Kingdom of the Hellenes.

Contrary to what is often stated, Greece definitely does have a national cuisine of its own, although many dishes are merely borrowed from the Turks. Bread, wine, olives, cheese and fruit, with meat included on religious feast days, comprise almost the total some of the dietary substance. Olive oil, transmitting the fragrance of those large Greek olives, which are so distinctive from others, takes a prominent place in the cooking, as do many herbs and spices.

Breakfast plays a small part in the day of a Greek person. Usually, coffee and bread are sufficient to sustain his appetite until the large meal of the afternoon. If he eats in a restaurant this meal may be preceded by a tray of hors d'oeuvres or "mezzedes", as the Greeks would call it. This tray might feature such foods as miniature meatballs, coiled shrimps, fried grudgeons, squares of fried liver, cucumber slices, quartered tomatoes and hard boiled eggs, olives, and perhaps even grilled octopus legs!

Although Greek soups are neither large in variety nor startling, they do offer some worthwhile adventures in eating. Probably the most famous type is Easter Soup, a tradition along with the cooking of the Pascal Lamb. "Soupa Avgholemono" is a variety found more commonly in the everyday diet. The distinctive flavor of this soup is based on the combination of beaten eggs and lemon juice added to a beef or chicken stock. The same mixture is combined in avgholemono sauce, which along with tomato and garlic sauces, completes the list of typical Greek dressings.

As far as meats and main dishes are concerned, rarely in Greece could the expression "slaying the fatted calf" be used, but more appropriately, "slaying the fatted lamb." Whole lambkin roasted, sprinkled with herbs,

and served with a perfect pilaff (rice-tomato dish) is regarded as the apex of Greek cooking. Limited supplies of veal, goat, fish and some beef are also eaten, but lamb is by all means the most common meat, no part being allowed to go to waste. Roasted head—eyes and all—is considered a delicacy as are liver and sweetbreads served together. "Kokoretzi" is another popular dish. This consists of the innards, diced and highly seasoned, cross-gartered with gut strings and roasted on an iron rod. Apparently not all of these "typical" Greek dishes would appeal to the American cook—the exact recipe for "kokoretzi" is notably absent from this article.

Veal is also used to some extent. Greek veal stew, however, is different from the American variety. Chunks of the stew are braised for long hours with small whole onions and what seems to be an incredible number of cloves of garlic. Seasonings such as thyme and bay leaves plus a dash of wine or vinegar are frequently used. Fish from the blue Aegean waters provide another essential to the diet. Many varieties, from little red "Barbounia" to "Synagrida", add contrast to the diet as do the lobsters, shrimp, and shellfish that are caught offshore of this peninsular land. "Plaki" is a method of preparing fish, whereby steaks or the entire fish are baked in a mixture akin to a Creole sauce and then eaten cold. Sauteeing or deep fat frying in olive oil is another usual method of preparation.

MANY main dishes, feature chopped meat and rice or macroni. "Dolmades", cabbage, lettuce, or vine leaves stuffed with meat, is a good example. Stuffed peppers, tomatoes and eggplant are also common dishes. Since there are so many fast days in Greece throughout the year, the Greeks prepare for these occasions a number of variations of vegetable stews with lots of olive oil. Spinach stew with rice, stewed string beans with tomatoes and okra stew are a few of the familiar vegetarian dishes. Other typically Greek vegetables are artichokes, celery, squash, cucumbers, etc. Greeks have refrained from eating too many raw vegetables because of the questionable purity of water used for watering gardens. Vegetables, including all green ones, are usually thoroughly cooked, and eaten

with oil, vinegar or lemon juice, and salt and pepper.

Although desserts are not as important a part of the meal in Greece as here in America, anyone ever having tasted the rich flaky, nut and honey filled Greek pastries will testify that they must have been originated for the gods and goddesses of Mt. Olympus. Shortbreads, rich cookies (often baked in syrups), honey cakes, and filled pastry are chief among the baked products, while fresh fruits and stewed fruit compotes most frequently provide the finishing touch to a meal.

FOR a lavish dessert reflecting the rich cuisine of the Greeks, however, I could suggest nothing more inspiring than "Baklava". Following is a recipe taken from the kitchen of the Hotel St. Moritz in New York City:

## BAKLAVA

"Grease a roasting pan with butter. Then starting with a sheet of filo, alternate with a mixture of chopped almonds, sugar and cinnamon. Spread this mixture over each layer till you have 12-14 filo sheets, one on top of the other. (Before sprinkling the mixture, brush each layer of filo with butter then add the mixture.) Add 2 sheets of filo on top and butter well. Cut with a knife to the number of portions you desire. Bake in a medium oven. When done to a golden brown, take out of oven and pour the cold syrup over it."

### Syrup for Baklava

"2 lbs. sugar, one qt. water. Lemon peel and cinnamon sticks. Cook until syrup thickens. The syrup must be cold before it is poured over the hot Baklava."

### Filo Dough

3 lbs. flour  
1 egg  
warm water  
olive oil, salt

"Mix flour, egg, a little olive oil and warm water to form a dough. Work about half an hour till it is consistency of bread dough. Let stand about an hour, then roll out dough with rolling pin on a wide wooden table. The sheet should be rolled out thin as cigarette paper."

Why not try your hand at "baklava" while you're at home during Spring vacation. Its texture and exotic flavor will intrigue your friends.

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## School . . . It's Fun!



When children play, they do a host of things from "playing grown-up" to climbing, digging, and poking their curious little noses into everything they can find.

Here are some of the children at Cornell's nursery school, adventuring their way through an afternoon at the play area by Martha Van Rensselaer Hall.

Top; Choo-choo train, with all the noises, is a feature attraction with these handy boxes around.

Left; Learning to identify words and pictures is "quiet time" fun.

Lower left; It's a man's job to run a gas station. These two youngsters are very busy being men.

Below; Even the tiniest child considers climbing a must, and this one is no exception. He seems to be an expert.



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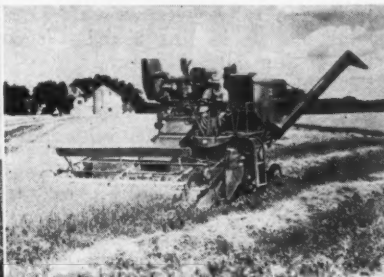


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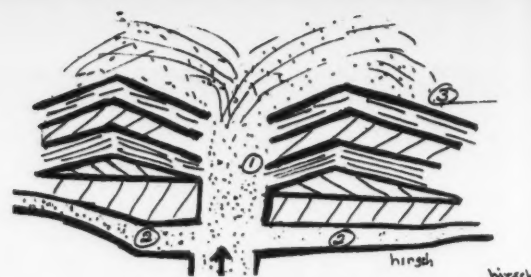
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# Volcanos

By GERALD P. HIRSCH '59



Cut Away Of An Erupting Volcano  
1 Vent. 2 Magma. 3 Lava. ↑ Direction of magma flow.

OUR earth was once the scene of extensive volcanic activity. According to popular scientific theory, the earth started out as a red hot fire ball, the progeny of some huge star. As the earth cooled, large volcanoes appeared on its surface, serving as outlets for boiling material far below the earth's crust. Evidence of this extensive volcanic activity can be found today. As a matter of fact, we need venture no further than this country to observe past volcanic activity.

The most striking example of prehistoric volcanic activity in the United States can be found in our West, the Columbia lava plateau being the main example. This lava field merges with the Cascade Mountains in the East and extends through Washington and Oregon, and far into Idaho. For an area of from 200,000 to 250,000 square miles, the country is covered with this lava sheet. There is not one prominent point to be found within this area.

The Columbia plateau is composed of many individual sheets deposited like islands on the land surfaces. These surfaces contain the stumps of trees buried in lava and thoroughly silicified. The land covered by the lava flow is still bare of vegetation.

WHAT did these volcanoes look like when they first came into existence? Perhaps the following story, as told by a Mexican farmer, will aid in giving you a clear picture of the birth of a volcano.

"On the morning of February 19, 1943, we walked out to our fields to begin the day's work. Suddenly we noticed a thin column of 'smoke' (condensed steam, or steam and other gases carrying fine rock particles in suspension), rising from the ground. Later that evening explosions occurred, throwing rock fragments high in the air. The following morning we were able to view a steep mound 100 feet high, with a blunted top, out of which was thrown tons of rocks. Dust clouds formed by fine rock dust and vapors rose to great heights.

"Within a few days we saw a fiery, stone-spitting mountain in the middle

of our field. And from the ground lying beneath and next to the growing mountain came a flow of molten rock. This was a lava flow.

"The boiling hot lava covered the land for a distance of six miles. Our farm as well as many other farms was destroyed forever, for our land and our homes were buried beneath a sheet of dark rock formed by the rapidly cooled lava.

"And the mountain which grew out from the middle of our field kept growing. In two weeks it was 500 feet tall and on its first birthday it was 1,400 feet tall."

This awe-inspiring occurrence gave rise to the Paricutin Volcano. It is located in Mexico, 200 miles west of Mexico City.

THOUGH it may be centuries before the farmers of New York State find a volcano growing out of their hay fields, the event, if and when it comes, will be similar to that of the birth of the Mexican volcano. Aside from lava destruction, volcanic ash would be spread for many miles, the distance depending on the size of the volcano. The ash would suffocate all vegetation and animal life.

The heat from a volcanic eruption is tremendous. The bodies of victims of the Mont Pelee eruption at St. Pierre, on the island of Martinique were greatly reduced in size. Rapid dehydration would account for this size reduction. However, victims were not burned, and trees and other wooden objects were hardly charred. Since dehydration occurred without burning the body, the duration of heat had to be short. Because volcanic ash suffocates vegetation, it follows that lack of oxygen prevented the possibility of fire, and consequent burning of the bodies.

The action exhibited by the two volcanoes just described, and the action of all other volcanoes falls into two categories. The first type of action is the uprush of gases under high pressure. The second is the outflow of liquid (lava) rock. For example, the uprush of "smoke" arising from the Mexican field at Paricutin preceded

the outflow of liquid rock that destroyed all of the nearby farms. Many gases (super-heated steam, free hydrogen, carbon dioxide, sulfur dioxide, and chlorine, fluorine, and boron, were escaping by way of vents from outside the base of the volcanic cone.

THE lava flow, the second type of action, may be of many chemical types. Depending on the amount of silica present, there might be rhyolite, basalts, or andesite lava. Thus while one vent produces rhyolite, another might give off basalt.

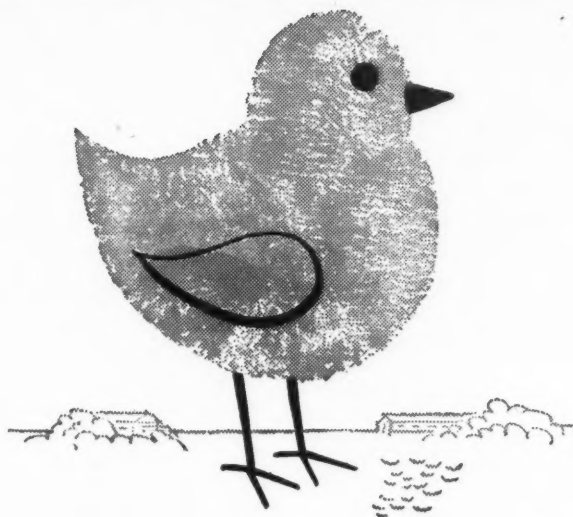
How far down the vents extend one can only speculate. Only by viewing exposed mountain lands that have been uplifted can we hope to derive a logical answer.

Traveling out to Oregon, we can see Crater Lake, which was originally the top of a volcanic cone. Once dormant, the top of the volcano caved in, leaving a great crater, commonly called a caldera. The melting of glacial ice formed the lake.

As the lava and rock material differ, so do the types of cones. Paricutin was a steep cone because it was composed of rock fragments which lay at such angles as to cause steep sides. If we were looking for gently sloping volcanoes, our search would end in Hawaii. Mauna Loa, one of Hawaii's larger volcanoes, is composed of lava that has spread out in thin layers, as though numerous sheets were placed one on top of the other. Because of this formation, all volcanoes similar to Mauna Loa are known as shield volcanoes.

According to geological texts written by the nation's leading scientists, the earth is cooling. Volcanic eruptions are becoming less frequent. The experience of the Mexican may never befall the New York farmer. And the scientists who investigated the earth's beginning are now predicting the earth's end. They offer as evidence of the earth's cooling the very fact that volcanic activity is decreasing. And when these life-destroying lava flows quiet down, scientists may perhaps dig down into them and find answers to many perplexing geological riddles.

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1953	207,498
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1956	223,803
Total	1,775,846

During ten years, Empire sold \$106,432,579. worth of livestock at a low average commission of 3.48%. From its ten year earnings of just \$185,050. Empire has paid Federal income taxes of \$57,400. in addition to all other taxes, paid by all other business, such as school taxes etc. In ten years, more and more folks have learned that it's good business to do business with

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# Beltsville:

By THALIA NUNGEZER '57 and MARGARET E. SATURN '57

**W**E had heard about the United States Department of Agriculture Experiment Station at Beltsville, Maryland, and had read about its plump-breasted turkeys and Zebu cattle, as you probably have. Still, we had only a vague idea of the scope and type of work which was being done. So on a rainy Friday between terms we visited the 14,000 acre research center 15 miles north of Washington, D.C., and got a first-hand view.

**A** six hour tour, led by George Snell of the Ag Research Service Information Bureau could only cover a few acres of the station, but it gave us an idea of the many and varied projects which are in progress. Beltsville researchers work primarily on prob-

lems of national interest. Most of this research is basic, as the aim is to accumulate scientific information that can be applied elsewhere.

**S**TARTing from the red brick college-like buildings of the Plant Industry Station, we ventured into a nearby greenhouse, one of a series covering five acres. Here bean diseases were being studied. Experiments dealt with the treatment of bean rust, yellow mosaic, and downy mildew with antibiotics such as agromycin and streptomycin. In an adjoining greenhouse, we saw an experiment aimed at detecting plants harboring strawberry virus. The goal of this work is to produce virus-free plants for commercial use.

The plant breeders at Beltsville are trying to find new varieties to meet the changing needs of the country. These new plants must have disease and insect resistance, in addition to better nutritive quality, palatability, high yield, and good storage and shipping qualities. Garden and fruit crop projects are only part of the research at the Plant Industry Station, which also includes field crops, soil and water conservation, agricultural engineering, and entomology.

After leaving this station, we drove to the main branch of the Agricultural Research Center, which is located several miles north on the opposite side of U.S. Route one. At the entrance, a many-armed sign gave us an idea of the various activities of the Center. On it were labelled:

- Forest Insect Laboratory
- Animal Parasites
- Geochemical and Petrology
- Human Nutrition and Home Economics
- Ag Marketing
- Pesticide Chemicals
- Soil Survey
- Poultry
- Beef Cattle
- Swine
- Goats

As it was lunchtime by then, we went to the Log Cabin, a cafeteria and social center used by the 2500 Beltsville employees. Mr. Snell pointed out renowned researchers eating with other workers from their departments. Even the cushions on the chairs were part of an experiment. The home economics division was trying to determine the resistance qualities of various materials.

After lunch we visited the home economics building. Researchers in

Beltsville researchers are studying a cow at 100° F. They hope to determine the factors responsible for greater heat tolerance of the Sindhi-Jersey crosses over Jerseys.



USDA AGRICULTURAL RESEARCH SERVICE



# e: Home of Diversified Research



USDA AGRICULTURAL RESEARCH SERVICE

This modern energy-saving kitchen-workroom was designed for homemakers who must conserve energy because of chronic illness or age.

human nutrition and home economics are studying the usefulness and economy of food, fabric and other goods and services from the point of view of the housewife. Their goal is better living in more satisfying homes for the American family.

**T**HE cheerful color scheme of the test kitchen pleased us at once. We soon learned that the room is pleasant to work in as well. It was designed to save time and energy for the homemaker, and features easy reaches, sliding drawers and doors, sitting spaces, and few steps.

The work counter is divided into centers for mixing, food preparation, and dishwashing. At the mix center, for example, the homemaker could sit down to bake a cake. Utensils and ingredients are within easy reach on a pegboard and a revolving corner shelf to her right. The mixer pulls out of a cupboard on ball-bearing casters. Flour and sugar are in bins at the back of the counter, while milk and eggs are a step away in the wall refrigerator on a center island.

Bending is eliminated with an oven built into the wall. The range units are set in the counter top next to the oven. The large top provides a working space, and the burners are arranged diagonally to eliminate reaching over one to use another. Pots and pans hang on pegboards, and other utensils are stored in drawers beneath the surface cooking unit. All storage space is between 27 and 63 inches from the floor, the height found best for the average woman.

**O**N the other side of the central storage island are a desk for planning, and shelves for books and toys. At the back of the kitchen is a workroom area where additional food storage space is provided by a closet and freezer. Another closet holds cleaning equipment. A washer-dryer and a sink are convenient on laundry day.

Comfortable eating space for six is provided in a family dining area at the opposite end of the kitchen. Dishes, silverware, cereals, and linens are stored within easy reach of both the table and automatic dishwasher.

Leaving this kitchen-workroom, wishing that our homes were similarly equipped, we turned our interest toward the animal husbandry setup.

The dairy barns, home of the top Advanced Registry Holstein Herd in the country, were our next stop. Dr. R. E. Hodgson, Chief of the Dairy Husbandry research branch, outlined the Beltsville dairy work before we visited some of the barns and laboratories. More efficient milk production on dairy farms is the basic objective of this branch. Activity is divided into three sections; nutrition and physiology, breeding and management, and herd improvement and sire proving.

**I**N the nutritional field, feed efficiency work is an exclusive at Beltsville. The study, as outlined to us by Dr. N. D. Baylay, head of the Breeding and Management Section, is concerned with measuring the utilization of feed in lactating cows. A means of feeding is being devised to bring out the differences in the amount of feed required by individual cows.

(turn to page 27)

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# Defense for

Forest fires, a product of  
our own folly, are being  
fought by modern means.

By PETER B. CASGRAIN '59

THE brush was dry; fire traveled through the forest quietly. Flames swiftly hopped a river bed trapping 18 fatigued fire fighters against a cliff. Eleven of these men perished. The fire was not smothered until it had eaten 45,000 acres of forest land. It lasted five days, costing 2 million dollars. This forest blaze occurred last fall in California's Cleveland National Forest. Perhaps its devastation was above average but the fact remains that America loses over 40 million acres of valuable timber annually to some 150,000 forest fires.

WE can blame ourselves for almost every one except the relatively few started by lightning. Over 90 percent are started directly or indirectly by human beings. The carelessly tossed cigarette butt or burning debris left unattended can cost millions of dollars. And more than a few fires have been started by "firebugs."

There are more effects from forest fires than the casual observer would like to believe. Larger trees are seldom destroyed by the fire alone. But parts of the bark and cambium are

usually lost due to excessive heat. Insects and fungi can then penetrate and gradually ruin the tree.

SOIL is probably impoverished even more than the trees. The valuable organic material is the part that burns. Moreover, erosion generally follows a forest fire because vegetation that had effectively held water is now destroyed. In turn, erosion produces silt deposits in streams making them unfit for desirable fish species. Since water runoff is vastly increased, flash floods often follow fires. Forest fires benefit no one.

Basically a forest fire needs three things to start — fuel, oxygen, and high temperature. Therefore, control methods are designed to eliminate one or more of these essentials. Throughout major forest lanes are cleared by bulldozers, plows, and saws. The lanes are wide enough so that fire can't possibly cross them. The topsoil is scraped off down to the non-ignitable mineral soil. These firelines, beside eradicating the fuel supply, provide sites from which to fight the blazes. Often firemen start backfires



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# Our Forests



A burned over area after a forest fire.

in order to head off the main path of the fire. If these smaller fires are kept under control, they can cut down the total amount of burned forest land appreciably. However, there is often risk involved in such a method because changing wind direction could initiate an entirely new blaze.

**T**O fight the flames of a forest fire men use many different types of tools. One of the most unique is called the Pulaski tool. This is actually a combination tool having the features of both the axe and the mattock. It is suitable for both digging and cutting. Many other efficient tools are employed in order to fight fires faster.

The most recent fire fighting development is the use of "air tankers" in California. "Operation Fire Stop," a cooperative group which includes the Forest Service and private organizations, attempted aerial fire fighting with the Navy's Avenger torpedo bombers two years ago. In earlier experiments they dropped water in containers which burst upon impact. But the group found it more effective to

release the water or chemicals directly from the plane. Sodium calcium borate mixed with water appears to be more adequate than water alone because this solution remains after plain water has evaporated. Its heavier weight also allows better penetration into tree and brush foliage, and its white color enables pilots to see where they made previous drops.

Air attack was a deciding factor in controlling 14 of 23 fires in California last fall. This method's best potential seems to be in helping crews get closer to the blaze by dampening the more vigorous parts, and thus decreasing the heat. Aerial fire fighting has proven potent too in remote areas before men can reach the flames.

**A**ERIAL fire fighting and similar weapons are proving effective. Even though forest fires have increased in number recently because more people are using woodlands for recreation, fewer acres are burned each year as man develops better methods and techniques to fight fires.

## SEE YOU AT THE BOOTH IN THE JUDGING PAVILION DURING FARM & HOME WEEK

Yes, Milk for Health, Inc. will have a booth in the Judging Pavilion at Cornell University during Farm and Home Week, March 18-23. Be sure to visit the booth, play the game and find out more about the self-help milk promotion program which unites dairymen behind the American Dairy Association program of National Milk advertising and the market Dairy Council's program of National Education.

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## A Glimpse at Some Bulletins

By ROBERT W. ADLER '58

### Hongkong Grass, Rope and Twine Seats for Chairs

*Cornell Extension Bulletin 964*

By Ruth B. Comstock

With work, a few hours, and some simple equipment, a discarded chair can be brought back to use. The first step is to find a sturdy chair which is simple in line and design. Then choose one of several materials to weave the seat. Four types of materials are described in the bulletin. The directions are simple and easy to understand and follow. The bulletin is well illustrated. It shows many of the steps of weaving, and several of the many designs which can be woven. All of the seats can be cleaned with mild soap suds. Use a damp cloth, but avoid getting the seat so wet that the weaving material becomes softened. Then, rinse and dry quickly and thoroughly. You'll be proud of the attractive, inexpensive chair seats you can weave.

### How To Cook Vegetables

*Cornell Extension Bulletin 883*

By Eleanor Williams

Vegetables add variety to meals with their eye-catching greens, yellows, and reds, and with their appealing flavors and textures. Meals need never be monotonous with so many vegetables to choose from. Two things should be kept in mind when cooking vegetables. First, keep as much of the original nutritive value in the vegetable as possible. Second, make the vegetables look and taste good so that the family will always enjoy them and demand more. This bulletin gives hints about selecting and caring for vegetables. Tips about cooking and methods of cooking are discussed and ways of serving are mentioned. Remember, that with a little care, vegetable dishes can be the highlight of the meal.

### Maple Syrup and Other Maple Products

*Cornell Extension Bulletin 974*

By F. E. Winch, Jr., and  
R. R. Morrow

One of the most typically American foods produced in New York State is maple syrup. This product is definitely a luxury. It is one from which the sugar "bush" operator may obtain cash in return for labor and investment. "Sugaring off" comes when other farm work is light. The best tree to supply the sweet sap from which the syrup is made, is the hard, rock, or sugar maple. It furnishes the sap for at least three-fourths of the commercial syrup produced. This bulletin gives sound advice about establishing and developing a sugar bush. It describes the processes of tapping, bucket hanging, gathering, and boiling the sap. The bulletin also describes the equipment needed for making the syrup. "Sugaring off" brings to mind the steam-filled sap house and the wonderful syrup entered in the County Fair.

### Care of Electric Motors

*Cornell Extension Bulletin 848*

By Forrest B. Wright

In comparison with other farm power units, electric motors require relatively little care. The care which they do require though, is as essential as for any other machine, if they are to be kept in service. This bulletin suggests nine points as guides to proper motor care. A few of these points are: keep the motor bearings properly lubricated; keep the motors clean, well ventilated and dry; be sure that the motors are supplied with the proper voltage; don't overload a motor; be sure the motor shaft and the loads are free to turn before trying to start the motor; and use the overload protection. Electric motors will serve their intended purposes if they are properly cared for.

THE CORNELL COUNTRYMAN



## EDUCATION = UNDERSTANDING

*Back in 1938, when this organization was a fledgling in the field of cooperative milk marketing, the Executive Secretary's report said in part:*

... "Dairy farmers are interested in building their own marketing program, and if it is to be lasting, it must be on a foundation that is sound and four-square with the facts. That program will grow and return dividends to producers in keeping with the desire for and the understanding of the facts by the average producer."

**In other words:**

### EDUCATION = UNDERSTANDING = PROGRESS

Today, thousands of milk producers in the Metropolitan New York "Milkshed" are enrolled through their individual cooperatives in this Bargaining Agency—still dedicated to progress from understanding through education. *Here's proof that:*

### EDUCATION = UNDERSTANDING = PROGRESS = GROWTH

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- Takes officials of member groups on special working tours
- Works constantly with members through trained fieldmen
- Publishes a regular monthly NEWS for all members and others interested in milk marketing
- Holds regular delegate body meetings to study current milk marketing problems
- Provides full information to all newspapers, radio stations, TV stations and other public media
- Cooperates with other groups in programs which will benefit all dairymen
- Works actively to "educate" public officials to the needs of dairymen

Every dairyman in this milkshed needs to be part of a program like this. Your encouragement will help any you know to join a local milk marketing cooperative affiliated with

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MARCH, 1957

25

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**A**LL cows are fed the same amounts, with varying results. One cow we saw in the test barn has remained hog fat, but her milk production has dropped. In another case, the opposite is true. The cow is thin, but has kept up her production. As yet data is not sufficient to determine whether feed utilization characteristics are inherited.

In the 60 stall test barn we also saw heifers who have been raised on large amounts of various high quality roughages. Researchers discovered that these heifers need only 560 pounds of grain, instead of the usual 2000 to 3500 pounds from birth to first calving, to attain normal growth.

The mature cows which are being used in nutritional studies first participated in the proven sire program to establish their production ability. They are on test as first calf heifers and again as mature cows. Environmental conditions are kept as nearly similar from year to year to allow for accurate genetic evaluation.

The proven sire research program is trying to determine whether there

is any gain in production from the continuous use of proven bulls. The effectiveness of the use of these bulls is shown in the high-producing Beltsville herd. The 74 Holsteins on test have a 576 pound butterfat average as compared with the 475 pound breed average. The 1956 production of the herd was 14,346 pounds of milk with a test of 4.02.

**D**AILY records are kept on the cows on a 305 day, twice-a-day milking basis. Machine milking has just been introduced so that the Beltsville practices will conform to those of the average dairy.

At Beltsville an animal is never culled for low production. The herd is probably the only unselected one in the country. This is necessary for accurate determination of sire transmission. When the herd gets too large, the oldest sire group is removed, regardless of production.

We were impressed by the tremendous size of many of the cows, particularly the heifers. They were not of uniform type, however, as production,

not appearance, is the important consideration.

In the laboratory building freezing room we saw udders filled with formaline and suspended in a natural position. They had been removed from cows and heifers slaughtered at the Center. Later they are cut into vertical sections to study gland formation at various ages in order to determine the relation between tissue structure and producing ability.

From the freezing temperature we walked into the 190 degree temperature of the heat chamber. In our winter clothing we were sympathetic toward the unclipped sheep who were being tested. The heat tolerance experiments with cattle are better known than those for sheep, however. Zebu and Red Sindhi cattle were used.

**A**FTER our six hour tour of the Beltsville station we felt that we had seen and learned a great deal. However, we realized that we had seen only a small part of the picture. It would really take weeks to cover all aspects of this vast research program.

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## Medfly (from page 6)

**I**N May a Federal quarantine became effective. Except for one county, the southern fifth of Florida was under quarantine. Checks on incoming foreign baggage and products were strengthened. Even though inspectors had found and destroyed Medflies many times during previous years, there is a great likelihood that the insect crept into the United States at the Miami International Airport.

Boats, trains, and buses were also searched for potential disease carrying material. Stickers warning travelers not to carry host fruits or vegetables to Medfly-free areas appeared on ticket envelopes. Signs bearing similar messages were placed along every highway within the regulated areas.

Only those articles certified on the basis of treatment, inspection, or non-exposure to infestation were allowed to move to other states. State Plant Board roadblocks prevented movement within Florida of products likely to harbor the pest. Soil, picking and processing machinery in addition to fruits and vegetables were closely watched. In the four months, following detection of the Medfly, two and a half million vehicles were checked.

Many fumigation chambers for citrus fruits were in operation. Ethylene dibromide and methyl bromide were the fastest, least expensive treatments. Cold storage and vapor-heat, both developed during a seven and a half million dollar eradication program of the Medfly from Florida in 1929 and 1930 were also used.

It is almost a year since the Medfly invasion in Florida. An area of over three-fourths of a million acres has been treated during the campaign. A cumulative acreage three times that was covered during re-spraying. Multi-engine airplanes sprayed the main eradication area of 210,000 acres. Smaller craft were kept busy in other locales wiping out spot infestations found in about 48,000 traps.

**B**Y the beginning of this year, only 38,000 acres were being sprayed. Three out of seven restricted counties were removed from the quarantine following an interval of three "fly-free" months. Traps will be manned until no trace of the Medfly can be discovered in Florida.

The effectiveness of the program is the result of coordinated efforts of various groups. The Federal government assigned USDA technical personnel to aid in trapping, spraying, and quarantine enforcement. The sprays and attractants were developed in USDA laboratories. The State of Florida regulated all areas not under Federal quarantine and maintained the road blocks. Local governments, growers, processors, shippers, and even tourists have cooperated in bringing the Medfly under control.

**D**ESPITE the recent Medfly attack, the economy of Florida remains steady. This was not the case in the Medfly's first attack in 1929. The program then called for the destruction of all host fruits and vegetables to starve the fly. The Medfly was eradicated but the crops were also destroyed. Many growers were ruined, and many banks failed. Today we are fortunate that improved methods are eliminating the Medfly while Florida's billion dollar fruit industry, source of almost seventy-five per cent of our nation's citrus crop, continues to flourish.

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## Food Preservation (from page 13)

THE actual process is fairly simple. Large two hundred gallon tanks are located at the end of the eviscerating line. The Acronize Poultry Dip is a yellow powder containing ten percent chlortetracycline. A 2.6 ounce quantity of this is dissolved in about two gallons of water and poured into the tank. The tank contains an ice slush mixture where the poultry are normally placed to remove body heat. This slows down bacterial growth. Studies have shown that the chickens usually take up enough chlortetracycline to inhibit almost 99 percent of the total spoilage organism count present. The poultry are usually packaged as soon as they are removed from the cooling bath to avoid contamination.

One question which is always asked about the process is "How toxic is the antibiotic to humans?" Extensive tests on animals and humans have shown that chlortetracycline, when used as a food preservative, has a high margin of safety. Since it is easily broken down by heat, the preservative is almost inactivated beyond detection during cooking.

The use of Acronize will not stop with poultry. The fishing industry hopes to save nearly twenty-five million dollars worth of fish spoilage by microorganisms each year. To meet the special preservative conditions required by fish, an antibiotic ice has been created. The ice is made by adding chlortetracycline to water, and putting the mixture into freezing cans which will turn out 300 pound yellow cakes. Fish kept in the ice maintained top quality up to a week longer than fish caught on the same run and stored in ordinary ice. The reduction in deterioration should extend storage life aboard ship, permitting fishing boats to venture farther out to sea where new sources can be found.

BEEF preservation with antibiotics has also been successful. Another consideration is the use of chlortetracycline where refrigeration does not exist. Experiments in Puerto Rico and Cuba have proven the worth of Acronize in extending the length of time which fresh beef can be kept unrefrigerated. South American cattle producers feel that Acronize will re-

lieve the costly spoilage problem which results from the transportation of beef from mountain area to city market.

THERE is also promise that the antibiotic may be of some use in the whale industry. The whale is a warm blooded animal which is so large that it takes relatively long periods of time to chill the meat for processing. Much of the meat is lost before any processing can be done. It is very possible that if antibiotics could be injected into the carcass before spoilage sets in, much of the meat could be saved.

Many technologists feel that chlortetracycline can be used effectively in preserving some fruits and vegetables. These perishable foods often suffer the same type of bacterial spoilage as flesh foods. It is conceivable that antibiotics will save thousands of tons of frozen foods which have accidentally defrosted while en route to retailers.

Marketing reports indicate that the introduction of the antibiotic treated poultry on the American retail market has been very successful. Both

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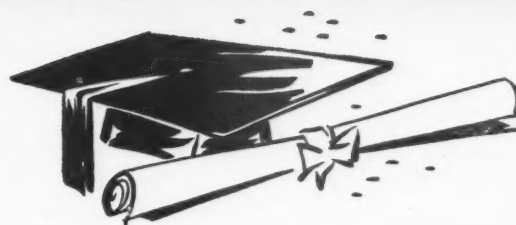
sales and markets of processors have increased enormously. Retailers have reduced deliveries to only once a week. Many stores are carrying large quantities of poultry into the weekend, the result being an increase up to 40 per cent in sales.

From the processor's point of view it is cheap. The cost per pound of poultry is between one-third and one-half cent. Since no complex machinery is required, equipment costs are almost nil.

In order to insure the correct use of the process, companies planning to use the Acronize Poultry Dip must enter into a franchise with the manufacturer. The agreement provides that the product must be used in strict accordance with the manufacturer's quality control division. The quantities and application of the antibiotic used is specified in detail.

The success of Aureomycin chlortetracycline as a food preservative should open up a new era in the use of antibiotics to control food spoilage. Such antibiotics such as subtilin, gramicidin, bacitracin, and streptomycin have already been shown to be partially successful in the canning industry. Aureomycin has also been effective in promoting growth in chickens, pigs, and cattle. This finding has led to the production and utilization of the by-products of the manufacture of Aureomycin in the preparation of commercial feeds.

In laboratories through out the world a great deal of work is being done on the chemical composition and structure of antibiotics. There is no telling how much benefit these small molds will be to mankind in the future.



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Many agricultural graduates sign up every year with Eastern States Farmers' Exchange. Most of them stay on because they find the work rewarding and interesting. Many have advanced to responsible executive positions.

Farmers have built in this strongly financed cooperative an efficient business organization to help make their farm operations more profitable.

Personnel executives visit with students every year. You may arrange for an interview through your department head.



### Eastern States Farmers' Exchange, Inc.

SERVING 100,000 FARMERS IN NINE NORTHEASTERN STATES  
Headquarters: West Springfield, Massachusetts



Here is a part of the crowd at one of the 1956 demonstrations of bull handling techniques at NYABC headquarters.

#### • EXHIBITS • DEMONSTRATIONS • SPEECHES • DISCUSSIONS

Here's the program: • DAILY—2 p.m. and repeated at 3:30 p.m.

"Better Bulls and Better Service Through NYABC." Talk by Manager Maurice W. Johnson.

Demonstration of semen collection and bull handling techniques—Assistant Manager Harold B. Ross.

All Afternoon—Play the Dairy Game—Prizes for daily winners.

**4-H & FFA MEMBERS** See the display and discussion on *An AB Technician Profession*  
Learn about required training and job opportunities in this field.

### New York Artificial Breeders' Cooperative, Inc.

Judd Falls Road



Ithaca, N. Y.

Serving Dairy Herds in New York and western Vermont since 1940

## BE A PART OF THIS PICTURE THIS YEAR!

Once again, NYABC headquarters staff members have prepared a special program for visitors scheduled for every afternoon of Farm and Home Week. You are cordially invited to visit the breeding headquarters any afternoon of that week from 1:00 to 4:30 p.m., and see:

USDA, various federal credit agencies, the State Extension Service, and other agricultural agencies, stand by to help these local "Development" committees strengthen the position of the family farm in our agricultural system.

The Rural Development Program that governmental agencies are helping along, is the first farm program especially designed for small farmers. News from the "pilot-counties" shows that the program is really working. Farmers in these counties are adjusting their enterprises to fit their farms. And, they are improving the efficiency of their operations through better management. County "Development" committees are urging marketing industries to move into rural areas. The committees in some counties are organizing marketing co-ops.

**T**HE lending authority of the Farmers Home Administration has been expanded so that this agency can do a better job of serving more farm families. Larger operating loans can now be made, and larger loans to farm operators who work off the farm part time, have been authorized.

Research specialists from the Department of Agriculture and State experiment stations, have also been studying the small farm situation. These people are now working to develop the agriculture of small farms, and improve family living on them.

One of the ways that small farm income can be increased is by supplementing it with part-time work off the farm. Right now, this is the largest single source of farm income. And, it contributes \$1 in every \$3 of cash farm income. With more industries moving to rural areas, farmers are better able to find employment when farm work is slack.

**BESIDES** this possible source of added income, much can be done to make a small farm pay its own way, and pay the operator for his labor too. Culling poor producers from your herds and flocks will raise your net farm income. Also, planting new high yielding crop varieties will boost your farm's returns. Your farm may be better suited to a different enterprise from the one you are now concentrating on. So, it might be wise to shift

from dairy to poultry, for example.

Buying and marketing through cooperatives can often cut costs and increase your income. This is done by cutting out some of the middlemen involved in handling agricultural products and supplies. Through the use of its Conservation Reserve provision, the Soil Bank can be utilized by operators of small farms to check erosion, improve fertility, and develop money-earning timber.

**MANY** folks on small farms have been financially squeezed for a long time. In fact, some of them have begun to wonder if they can continue to operate. There are more than two million small farms in this country of less than 70 acres. The operators of many of these farms, and their families can continue to live on and work these farms profitably, if they take advantage of available opportunities. A combination of using your own home grown products, employing improved farm practices to increase your farm income, and working part time off the farm, can add up to good "country living", and a net profit too.

## **HUNGRY                      FEET TIRED**

**Come over and sit down**

**at our**

# **LUNCH COUNTER**

## **BARTON HALL**

**sponsored by:**

**CORNELL COUNTRYMAN**

**CORNELL GRANGE**

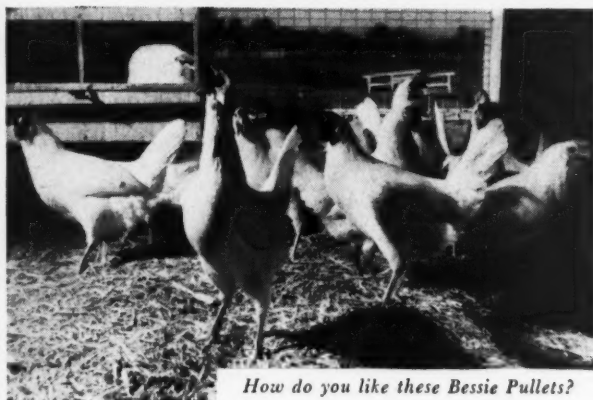
**C A T A**



# BABCOCK'S

## HEALTHY CHICK NEWS

MARCH  
1957



*How do you like these Bessie Pullets?  
Would you like a flock just like them?*

### *Is Vertical Integration Coming In the Egg Producing Business?*

**Definition:** Vertical integration is an arrangement whereby a businessman furnishes the poultryman the chicks, the feed, the medicine, etc., and the egg check goes to the businessman. He in turn pays the poultryman a certain amount for every dozen eggs produced. This practice is widespread in the broiler industry because the businessman can get his money back in 90 days.

Will it happen in the egg producing business? I don't know. Since it would take a businessman over a year to show a profit on layers I feel sure that vertical integration won't grow as rapidly with layers as with broilers. Also, well established poultrymen are going to stay in business for themselves. I can't see vertical integration taking away your market for high quality eggs.

I will try to gather all the thinking on this fact that I can and prepare a mimeographed letter on it for you. Please write for it.

**Babcock—Poor Economist:** Last winter at a Syracuse, N. Y. poultry meeting I predicted the price of large nearby whites at New York at 72 cents by September 15, 1956. Well they were 56 cents! I guess I better go back to cleaning dropping boards!

**Timely Hen House Tips:** Clean water troughs and fountains at least once a day. This is not to prevent disease. It is to encourage water consumption. Sure, a chicken will drink out of a mud-puddle. That tastes

good. But water out of a slimy, stinking fountain doesn't taste good. I've seen clean fountains jump production 20% in three weeks time. If you debeak your birds be sure the water is at least two or three inches deep in the fountain and easy to get at.

**Babcock Bessies:**

America's Really Fine Strain Cross Market Egg Producers.

Babcock Bessies Will Do These Three Things for You:

1. Produce Fancy Table Eggs at Low Cost. Many of our Bessie customers are housing more layers than they paid for as day-old chicks. We pack 105 pullets to the box and sexing accuracy averages over 99%. This cuts your chick cost per dozen eggs laid. Babcock Bessies product at a high rate of lay for 12 to 15 months and are good second year layers. High rate of lay cuts feed cost, labor cost, chick cost and overhead cost per dozen eggs produced.

2. Produce Large Fancy Chalk White Eggs That Top the Market. Babcock Bessies come into large eggs fast. A pullet might just as well lay a large egg that tops the market while she's at it. Since these Bessies lay at such a high rate of speed they don't eventually get into those over-large eggs that you don't get paid for.

3. Bessies Will Average About 4.3 to 4.5 lbs. When You Sell Them as Fowls. This is just the right size Leghorn. She can lay a lot of large eggs for a long time without going to pieces. She is small enough to give you good feed efficiency and yet she's not a pony type bird that meat buyers won't buy when you finally sell her off as an old hen.

I really feel the Babcock Bessies is the layer for you and we sure would like to sell you Babcock Bessies.

Please send for Babcock's New 1957 Catalog now ready for you. This catalog may be obtained by writing to Babcock Poultry Farm



Sincerely,

*Maurice C. Babcock*

Babcock Poultry Farm, Inc., Route 3N, Ithaca, N. Y.

Now! Two big ways 1957 IH Tractors put power to better use!



... gives you **PULL-POWER** second to none!

Say goodbye to frequent shallow-ups and shiftdowns! Here's your *double-barreled* answer to tough spots—new Fast-Hitch with Traction-Control, plus Torque Amplifier! See how this great combination of "grip and go" gives new McCormick® Farmall® 350, 450, and International® 350 Utility tractors pull-power out of all proportion to rated horsepower.

IH Traction-Control Fast-Hitch gives you continuous traction that *grows with the load*! This keeps you plowing full depth when others can't.

To give your IH tractor its second wind, just pull the Torque Amplifier lever. Instantly, without shifting, TA increases drawbar pull up to 45% to keep you plowing non-stop! This surging power-punch teamed with ground-gripping traction makes you master of the toughest plowing on your farm!

Call your IH dealer . . . he'll gladly demonstrate. Feel the "grip and go" of traction that grows with the load and the power-punch of TA. Try the new 4-plow Farmall 450 . . . 3-plow Farmall 350, or International 350 Utility.

See your  
**IH** INTERNATIONAL  
HARVESTER Dealer

International Harvester products pay for themselves in use—McCormick Farm Equipment, Farmall and International Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois

Outplow them all with the "grip and go" of this new Farmall 450—pulling a new McCormick 4-furrow Fast-Hitch plow with individual spring trip beams.

